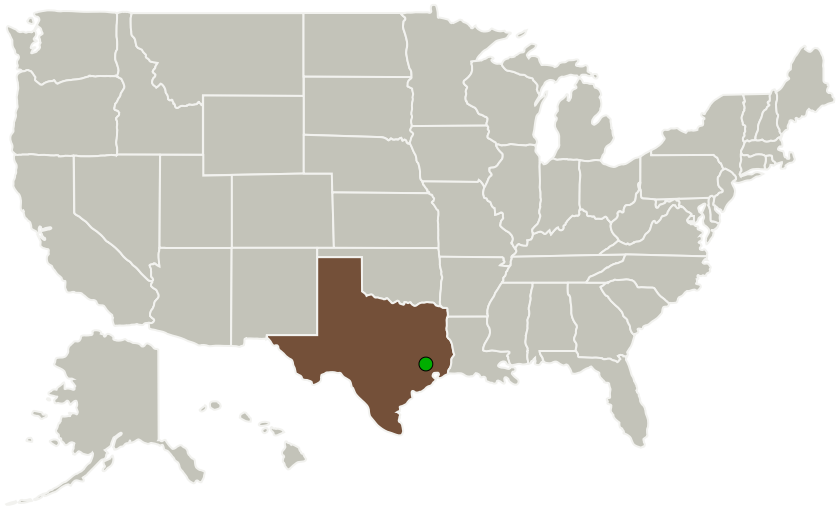
Guidance, Navigation, and Control System for Maneuverable Pico-Satellites, Phase II

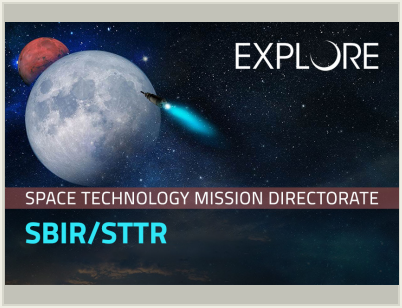
Completed Technology Project (2010 - 2013)

Project Introduction

Pico-satellites are an emerging new class of spacecraft. Maneuverable pico-satellites require active guidance, navigation, and control (GN&C) systems to perform coordinated tasks such as formation flying and automated rendezvous and docking. A compact, low power GN&C system will be fabricated and tested for use on pico-satellites. The proposed design provides 6 degrees-of-freedom (DOF) translation and rotation control in less than 25% of a 3-Unit CubeSat or 3 DOF rotation only control in less than one half a standard Cubesat volume. During Phase 2, flight components will be procured, integrated, and tested as a single embedded system and delivered as a flight unit for environmental qualification and in-orbit demonstration on a suitable pico-satellite flight opportunity. The technology is expected to reach TRL 6 by the conclusion of Phase 2.

Primary U.S. Work Locations and Key Partners





Guidance, Navigation, and Control System for Maneuverable Pico-Satellites, Phase II

Table of Contents

Guidance, Navigation, and Control System for Maneuverable Pico-Satellites, Phase II

Completed Technology Project (2010 - 2013)

Organizations Performing Work	Role	Type	Location
Austin Satellite Design	Lead Organization	Industry	Austin, Texas
Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas
The University of Texas at Austin	Supporting Organization	Academia	Austin, Texas

Primary U.S. Work Locations
Texas

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Austin Satellite Design

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

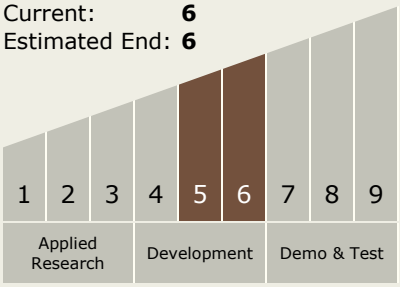
Carlos Torrez

Principal Investigator:

Glenn Lightsey

Technology Maturity (TRL)

Start: **5**
Current: **6**
Estimated End: **6**



Guidance, Navigation, and Control System for Maneuverable Pico-Satellites, Phase II

Completed Technology Project (2010 - 2013)

Technology Areas

Primary:

- TX17 Guidance, Navigation, and Control (GN&C)
  - TX17.5 GN&C Systems Engineering Technologies
    - TX17.5.1 GN&C System Architectures, Requirements and Specifications

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System